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AVIATION SERVICES

Automation and Consolidation of Flight Service Stations

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Resources, Community, and
Economic Development Division

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The Honorable Norman Y. Mineta
Chairman, Subcommittee on
Aviation
Committee on Public Works
and Transportation
House of Representatives

The Honorable John P. Hammerschmidt
Ranking Minority Member
Committee on Public Works
and Transportation
House of Representatives

This report responds to your request that we review the Federal Aviation Administration's (FAA) flight service station (FSS) modernization program.[1] This program is a major component of FAA's 1981 multibillion dollar National Airspace System plan. Under this program FAA is (1) consolidating the 317 local FSSs that existed in 1981 into 61 locations and (2) automating the 61 by replacing the leased systems[2] used by the FSSs with a new automated system. The intent of the FSS modernization program is to increase the productivity of FSS employees, called flight service specialists, and to reduce maintenance, rent, and utility costs.

Your request centered around four key issues relating to the FSS modernization program:

- Required services: are the automated FSSs performing all the services FAA requires of FSSs.
- Weather observations: are weather observations for areas formerly served by closed FSSs equal to or better than those the FSSs had provided, as required by the Congress.
- Technology: are technical problems experienced at the automated FSSs adversely affecting FAA's ability to provide required services.
- Staffing: are staffing constraints having an adverse impact on the operation of the automated FSSs as well as the FSSs not yet consolidated.

[1]Flight service stations offer preflight and in-flight services specially aimed at general aviation (noncommercial) pilots, including filing flight plans, conducting preflight weather briefings, and disseminating aviation weather information.

[2]Currently, FSSs use leased equipment to provide services—Leased Service A to obtain weather information from the National Weather Service for pilot briefings and Leased Service B to forward flight plans filed by pilots to various FAA air traffic control facilities.

You also asked our opinion on whether FSS consolidation should be postponed on the basis of what we found.

Our work shows the following:

- The automated FSSs are performing all the services FAA requires of FSSs, but the manner in which they provide many of them has changed.
- The weather observations now being provided by contracted weather observers located in the areas formerly served by permanently closed FSSs are equal to those that the FSSs had provided. FAA is testing an automated weather observing system that it intends to use as a replacement for the contracted weather observers to meet congressional requirements for making observations at former FSS locations.
- Remaining technical problems at the automated FSSs do not prevent FAA from providing the required services.
- Staffing and consolidation constraints have delayed achieving the anticipated productivity gains. These constraints are also increasing the number of FSSs that have not been permanently closed, but whose hours of operation are being reduced, resulting in more periods of the day when weather observations are not made at these locations. These staffing constraints will continue until consolidation of the FSSs is completed.

Considering the above, we found no basis for concluding that FSS consolidation should be postponed. We are recommending, however, that the number of flight service specialists not be reduced any further until the FSSs are closed.

Our work included discussions with pilots and flight service specialists and officials of their respective associations, discussions with automated FSS managers, and documentation obtained at the automated FSSs. See the descriptions of our scope and methodology contained in appendix I.

Background

The FSS modernization program aims to achieve greater specialist productivity through both consolidation and automation. Consolidating or gathering the specialists into larger groups provides greater work scheduling flexibility to match varying activity levels throughout the day. Automating the specialists' work functions is intended to permit them to provide services more efficiently.

In the mid-1970s, FAA began testing two automation prototypes and developed contract specifications on the basis of operational requirements for a new automated system that incorporated features from both. In September 1985 FAA began testing its new automated system, called Model 1, at the first three automated FSSs. Model 1 became operational at these stations in February 1986.

Pending development and operational testing of a more advanced computer system, called Model 1 Full Capacity,[3] FAA has opened or plans to open the 61 automated FSSs by installing Model 1 in 37 and the existing FSSs' leased systems in the remaining 24. At the end of fiscal year 1987, FAA had installed Model 1 at 37 automated FSSs and leased systems at 7 automated FSSs. According to FAA, between March 1990 and February 1993, Model 1 Full Capacity will be installed at the 61 automated FSSs, and the remaining FSSs will be consolidated into them.

Flight Services

Automated FSSs are providing all the types of services required of FSSs by FAA. Other services that were provided by closed FSSs, however, are being reduced or eliminated, and must be performed by others. Over the years, for example, staff at many FSSs began making observations of local airport weather conditions although FAA did not require this of FSSs. As the time for consolidation neared, the Congress required that FAA make arrangements to continue providing weather observations after the FSSs were closed. FAA is providing them through contracted weather observers.

FSS Services Required by FAA

The automated FSSs provide all the types of services FAA requires of FSSs. These services are (1) preflight and in-flight weather and aeronautical briefings; (2) flight plan assistance and filing; (3) air-to-ground radio contacts for weather and flight plan information and emergency assistance; (4) acquisition, editing, and distribution of pilot reports on hazardous and routine in-flight weather conditions and FAA notices to pilots describing the status of airports, navigation aids, and communications outlets and facilities; and (5) search and rescue operations assistance.

Although the automated FSSs provide all the required types of services, the manner in which they provide many of them has changed. For

[3] Model 1 Full Capacity uses essentially the same hardware as Model 1 with the main difference between the two being Model 1 Full Capacity's improved software. The improvements should permit flight service specialists to obtain data more quickly and with fewer computer terminal keystrokes and present data that are more refined to meet individual pilot requests.

example, the consolidation leaves fewer locations for pilots to visit to obtain a preflight weather briefing and file a flight plan. (According to FAA, about 5 percent of pilots were obtaining their briefings and filing their plans in person.) Conversely, one new telephone service permits them to record their flight plans and obtain recorded messages concerning weather for both the general area and popular air routes, thus avoiding or reducing the time needed to talk to a specialist.

Other Services

Many FSSs provide weather observations, but automated FSSs do not. Weather observations are made hourly, or more often if a significant weather change occurs, and include nine essential elements, such as wind speed and direction, temperature, ceiling (cloud height), visibility, and precipitation. The weather observations, along with those from other sources, are used by the National Weather Service to develop the aviation weather information, warnings, and forecasts (including area, route, and terminal weather) that FAA, in turn, disseminates to pilots.

The Congress has enacted legislation to ensure that weather observations will continue to be provided. Specifically, the Airport and Airway Improvement Act of 1982 (49 U.S.C. 2224) requires that when an FSS providing weather observations is closed, FAA must continue to provide equal or better weather observations, either by contract or instrument. FAA has been meeting this requirement by funding National Weather Service contracts for weather observers who provide the same weather observations for the closed FSSs' service areas as the flight service specialists they replace.

FAA plans to replace the contracted weather observers with a new automated weather observing system. FAA's fiscal year 1988 budget request included $2.7 million to begin installing this system at locations where FSSs had been providing weather observations before they were closed. FAA's justification is that the automated weather observing system provides weather observations less expensively than contracted weather observers.

In a July 1985 report,[4] we stated that FAA's operational testing had shown that the automated weather observing system did not meet FAA's operational requirements for four (including cloud ceiling and visibility) of the nine weather elements considered essential to providing airport

[4]Installation of Automated Weather Observing Systems by FAA at Commercial Airports Is Not Justified (GAO/RCED-85-78, July 29, 1985).

and area aviation weather forecasts and to maintaining aviation safety. However, FAA's program manager for the FSS modernization program informed us that an automated weather observing system is being tested that FAA anticipates will meet all its operational weather forecasting requirements.

At certain FSSs, flight service specialists have been providing other services, including issuing airport advisories, operating airport equipment, and monitoring navigation aids. However, FAA does not require any of these services to be provided by the specialists at either FSSs or automated FSSs.

Service Implications

Airport advisories include information on weather in the immediate airport area as well as on air and ground traffic. While weather observations will continue to be made and will be available to pilots from the automated FSSs, the contracted weather observers in the closed FSSs' service areas are not in communication with individual pilots and, therefore, cannot respond to their requests for up-to-the-minute weather and traffic information. Thus, pilots using these airports will have to exercise the same degree of care as when they use the thousands of other airports where such service is not available.

Airport owners must find other means of operating their airport equipment, such as runway lights and instrument landing system signals, which flight service specialists have done at some locations. The navigation aids (instrument landing systems and navigation beacons) will be monitored either by the airport owner or another FAA facility to ensure that the aids are working.

Technical Problems

An automated FSS has several major systems:

- the Model 1 computer system;
- the Integrated Communications Switching System which manages telephone and in-flight radio communications;
- the telephone lines used by pilots to obtain access to the automated FSS; and
- the data lines connecting Model 1's various components.

Problems have been experienced with each of these systems. Many, however, were transitional and have been corrected. We found that

those remaining do not prevent FAA from providing the required services.

Model 1

FAA had corrected all the technical problems with Model 1 that it considered critical before accepting the system for operation in the first three automated FSSs and has been correcting others as they have arisen. For those that remain, FAA has developed "interim operating procedures" to do the functions that Model 1 still cannot perform. For the most part, these procedures involve reformatting messages that Model 1 does not recognize into ones that it does and will accept.

Model 1 merely automates certain functions that flight service specialists have been doing manually or with leased systems. Where a technical problem with Model 1 prevents it from performing a certain function, it must be performed as it was in the FSS, taking more time to complete. Thus, Model 1 technical problems do not prevent an automated FSS from providing all the required services, but they do prevent FAA from increasing employee productivity as much as originally planned.

Although FAA has not estimated the additional time required to perform these interim operating procedures, flight service specialists and automated station managers advised us that the amount of time involved to perform most functions is not substantial. Our visits to seven automated FSSs confirmed that the time required to perform a given function is usually minimal, some only requiring an additional computer terminal keystroke.

Model 1 Full Capacity and future enhancements envisioned by FAA are to automate more of the functions that flight service specialists now perform manually. Until they become operational, however, interim operating procedures will be required. Two of these procedures, which concern international and military flights, can require considerable time at some automated FSSs. For example, we found that the procedure for international flights requires 2.5 staff-days daily at the Miami automated FSS to reformat international flight plans for entry into Model 1.

Other Systems

Technical problems have been experienced with the Integrated Communications Switching System, the telephone lines, and the data lines. The problems have either been eliminated or action is being taken to correct them.

Initial technical problems with the switching system have caused flight service specialists and pilots to have difficulty hearing each other and have occasionally cut off calls during conversations and caused telephones to ring at the automated FSS when no one was on the line. All of the technical problems have been corrected, and the systems are being further improved to provide better information to automated FSS managers on the number, type, and length of calls experienced throughout the day. This information will be used to make more informed decisions on such things as work schedules and the number of communication lines required at the automated FSSs.

When problems with the telephone lines used by pilots to reach the automated FSSs have been traced to poor line quality or lines that were not connected, FAA has required the responsible telephone companies to correct them. Peak period overloads of telephone companies' entire systems, which sometimes occur on national holidays, however, will continue to be a problem for FAA until the capacities of the telephone companies' systems are increased.

The data lines connecting Model 1's various components have experienced outages during the initial implementation, particularly at the first three locations. However, so far, the outages have rarely disrupted services to pilots because other lines or the leased systems are being retained as backups. FAA is reducing the number of times services are disrupted by outages by acquiring additional backup lines with funds included in its fiscal year 1987 supplemental appropriations.

Technology Implications

While technical problems at the automated FSSs have not prevented FAA from providing required services, they have dampened general aviation pilot acceptance of the FSS modernization program. Transitional problems that have since been corrected by FAA have resulted in lingering reluctance to use the new automated FSSs.

"Lost" flight plans are a case in point. Changes in the geographical areas covered by several FAA air traffic control facilities in the Northeast were not included in Model 1's initial software and resulted in flight plans being sent to the wrong locations. Other plans were lost when specialists did not realize that several pilots had filed flight plans using the new optional recording system and entered only the first flight plan. Although it is impossible to determine how many flight plans were lost, incorporating the correct airport identifiers into Model 1's software and

training the specialists appear to have solved the first and second problems, respectively.

When occasional outages of Model 1 require the use of backup procedures, some flight plans may be forwarded after the scheduled flight departure times because they must be manually reentered into the system. Others are still lost because pilots file incomplete, unclear, or erroneous plans and forget to leave their telephone numbers on the recording, as requested. Again, determining how many flight plans are lost in this manner is impossible, but these problems should diminish as outages are reduced and pilots become more accustomed to using the automated FSSs.

We obtained data from the Integrated Communications Switching System on the time required for pilots to access services during a daily 4-hour high-activity period at 16 automated FSSs for 2 weeks in January 1987. In 95 percent of the hours in the sample, the average wait was under 2 minutes and the longest wait was 14 minutes. (See app. III.) No data were available, however, to identify the reasons why the access time varied. In addition, because no data were available on pilot access times at FSSs before they were closed, we could not compare wait times before and after consolidation.

Staffing

Developing the automated systems and consolidating the FSSs have taken longer than FAA originally anticipated and staffing reductions have not been adjusted accordingly. Maintaining both the automated FSSs and the local FSSs has resulted in delays in achieving the productivity gains through consolidation into the automated FSSs and has reduced the time during the day that weather observations are available at an increasing number of local FSSs.

Reductions in Staff

In 1978 FAA planned not to reduce FSS staffing until the modernization program was virtually complete. FAA felt that a relatively stable work force was needed during the transition until flight service specialists at the automated FSSs became proficient and increased their productivity.

A substantial decrease in general aviation activity, however, made flight service specialists a prime target for government-wide staff reductions begun in 1981. FAA statistics show that between 1981 and 1986, reduced general aviation activity resulted in a 22-percent decrease in demand for

the services provided by FSSs and automated FSSs. Therefore, FAA abandoned its original plan in 1982 and reduced the number of FSS employees from 4,819 in 1981 to an estimated 4,410 in 1987, or by 8 percent. FAA also requested that the number of FSS employees in fiscal year 1988 be reduced by 176, or 4 percent, from fiscal year 1987.

FSS Modernization Is Delayed

A 22-percent decrease in services provided may have justified a decrease in the number of FSS employees if consolidation of FSSs had proceeded as originally planned to achieve the anticipated productivity gains. However, the modernization program has been delayed about 2 years, in part, because of problems developing the Model 1 software.

It appears that further delays in closing FSSs will be experienced. The Conference Report on the Department of Transportation's fiscal year 1987 supplemental appropriations states the conferees' intent that FAA not close any FSS after July 15, 1987, unless the area served by the FSS will be served by an automated FSS equipped with Model 1 or Model 1 Full Capacity. FAA had planned to consolidate up to 99 FSSs into the 24 automated FSSs using existing leased systems. These FSSs may have to remain open until Model 1 Full Capacity is installed beginning in March 1990.

Staffing Implications

According to FAA officials, FAA has not yet determined the impact that compliance with the language in the Conference Report will have on staffing at the affected automated FSSs and FSSs. They did say, however, that one possibility would be to reduce the number of specialists and hours of operation at more FSSs and that this would comply with the conferees' intent to keep the FSSs open by operating them on temporarily reduced schedules while freeing more staff to relocate to the automated FSSs.

While pilots can obtain the required FAA services from other FSSs or automated FSSs, FAA often makes no provision for weather observations during those times when an FSS is temporarily closed or its hours of service reduced because of staffing constraints such as annual and sick leave usage. Seventy-nine FSSs were temporarily closed or had their hours of service reduced because of insufficient numbers of staff as of April 1987. (See app. II.)

Some automated FSSs have been opened with fewer staff than the minimum that FAA had stated was needed. However, FAA has not developed

performance and staffing standards for the automated FSSs and believes that it cannot do so until (1) consolidation of the FSSs is completed and flight service specialists have been moved to the automated FSSs, (2) the specialists have become more proficient with the new automated systems, and (3) productivity can be measured over time.

Conclusions and Recommendations to the Secretary of Transportation

We believe that employee productivity will increase when flight service specialists are gathered into larger groups and that maintenance, rent, and utility costs will be reduced when the number of FSS locations is reduced. We also believe that productivity can be further increased by automating certain functions now done manually or with leased systems. Moreover, the substantial decrease in demand for services in recent years by general aviation pilots provides additional justification for proceeding with the FSS modernization program within the constraints imposed by the Congress so that services can be provided more efficiently.

We have found that all the types of services FAA requires of FSSs are being provided by the automated FSSs. FAA must also ensure, by law, that weather observations made after an FSS is consolidated continue to be equal to or better than those made before the FSS was closed. This means that FAA should not replace flight service specialists or contracted weather observers with a new automated weather observing system unless it meets all of FAA's operational requirements for the nine weather elements considered essential to providing aviation weather forecasts and to maintaining aviation safety.

Although FAA experienced technical problems with each of the major systems at the automated FSSs, many were transitional problems that have been corrected. Those that remain do not prevent FAA from providing required services. Some of the problems, however, do prevent FAA from increasing employee productivity as much as originally planned because functions that are to be automated must still be done manually, taking more time to complete.

The most pressing problem at the moment relating to the FSS modernization program is staffing. While reductions in the flight service specialist work force have occurred, they have not been matched by a comparable gain in productivity because of consolidation and automation delays. Further delays in closing FSSs may continue the problem. If the work force is reduced further, more FSSs may have to temporarily close or reduce their hours of service, resulting in increasing time periods when

no weather observations are made. How many staff FAA actually needs will not be known, however, until FAA has developed performance and staffing standards for the automated FSSs.

Therefore, we recommend that the Secretary of Transportation direct the Administrator, FAA, to

- not further reduce the flight service specialist work force until after the FSSs are closed and performance standards and staffing levels can be developed for the automated FSSs and
- ensure that the automated weather observing systems, acquired to replace contracted weather observers for areas formerly served by FSSs that have been closed, meet all of FAA's weather forecasting operational requirements.

We discussed the contents of this report with FAA officials and they generally agreed with the information presented. We have incorporated their views and comments where appropriate. However, as agreed with your office, we did not obtain official agency comments on a draft of this report.

As arranged with your office, we are sending copies of this report to the Chairmen of the House and Senate Subcommittees on Transportation and Related Agencies, Committees on Appropriations; the Secretary of Transportation; and the Administrator, FAA, and will make copies available to other interested parties upon request.

This work was performed under the direction of Kenneth M. Mead, Associate Director. Major contributors to this report are listed in appendix IV.

J. Dexter Peach

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Assistant Comptroller General

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Abbreviations

FAA	Federal Aviation Administration
FSS	Flight Service Station

Objectives, Scope, and Methodology

Objectives

The Chairman and the Ranking Minority Member, Subcommittee on Aviation, House Committee on Public Works and Transportation, in their letter of August 15, 1986, expressed concern about personnel practices that reduce services at FSSs, technical problems at automated FSSs, and services provided by automated FSSs. They asked us to examine

- whether the services provided by the automated FSSs are as good or better than the services provided by the FSSs that they are replacing,
- the technical problems being encountered in the automated FSSs, their significance, the schedule for their resolution, and their effect on the ability of the automated FSSs to meet FAA's requirements, and
- the causes and effects of emergency part-time staffing (part-timing) at and closure of FSSs.

They also asked whether consolidation of FSSs should be postponed until the Model 1 computer system has been demonstrated and proved effective.

Scope and Methodology

To obtain information on the goals and progress of the FSS modernization program, we interviewed the FAA program managers responsible for its development and implementation. (During our work, the program moved from a developmental phase to an operational phase and FAA changed program managers to match this status.) FAA headquarters staff provided us with data concerning both staffing and the number of part-timed and closed FSSs.

We reviewed the weekly status reports to the FAA Administrator. These reports, which began in July 1985, review the progress of flight service automation.

To discuss concerns about automation, we interviewed a representative of the Aircraft Owners and Pilots Association and the president of the National Association of Air Traffic Specialists, which is the union of flight service specialists. We also interviewed the airport managers of the Salisbury/Wicomico County Regional Airport in Maryland and the Youngstown, Ohio, airport. FSSs at both of these airports are to be consolidated. The Aircraft Owners and Pilots Association provided us with copies of numerous letters from pilots concerning their experiences with the automated stations. The association also requested pilots to send such letters directly to us. Altogether, we reviewed over 100 letters from pilots discussing their concerns with the FSS modernization program.

We interviewed station managers, specialists, and other staff members during our visits to seven automated FSSs (Bridgeport, Conn.; Cleveland, Ohio; Conroe, Tex.; Leesburg, Va.; Macon, Ga.; Miami, Fla.; and Nashville, Tenn.). Two—Bridgeport and Cleveland—were among the first three automated FSSs commissioned with Model 1 in February 1986. Thus, they have had the longest problem-solving experience with the Model 1 system and the modernization program.

At two of these automated FSSs—Cleveland and Leesburg—we also talked to the automation specialist for the computers serving the automated FSSs. We discussed the extent and causes of data-line failures and their effect on the automated FSSs.

At the Cleveland automated FSS, we obtained a copy of the interim operating procedures, which apply to all automated FSSs. We reviewed these procedures and discussed them with specialists and managers at the automated FSSs. We also interviewed representatives of the Model 1 contractor and FAA's FSS modernization program managers to discuss the resolution of Model 1 problems.

We also visited eight FSSs (Atlanta, Ga.; Bristol, Tenn.; College Station, Tex.; Crossville, Tenn.; Knoxville, Tenn.; Roanoke, Va.; Salisbury, Md.; and Youngstown, Ohio) that are to be consolidated into the automated FSSs that we visited. At these FSSs, we met with station managers and specialists to discuss the changes in their operations since an automated facility had opened in their area.

To discuss concerns about the effects of temporarily closing FSSs or operating FSSs with reduced hours of service, we interviewed the heads of the state aviation administrations in Montana and Texas—states in FAA regions having a high percentage of FSSs temporarily closed or operated with reduced hours of service. We also discussed this issue with the managers of two FSSs (College Station, Tex., and Lewiston, Mont.) that had been temporarily operating with reduced hours of service. We discussed with the vice president of the Regional Airline Association the effects on regional airlines of temporarily operating FSSs with reduced hours of service.

Since FAA regional offices are implementing the modernization program, we contacted four FAA regional offices—Eastern in New York, Southern in Atlanta, Southwest in Ft. Worth, and Northwest Mountain in Seattle. We discussed with cognizant officials the program implementation and

the temporary closing and reduced hours of operation, including the criteria used in selecting FSSs for temporary reduced hours of operation.

We discussed the provision of contracted weather observers with National Weather Service officials. The Service is responsible for selecting and monitoring the contracted weather observers who will provide the weather observations for the service areas of the consolidated FSSs.

As explained in appendix III, the amount and type of data on the time required for pilots to access services provided by automated FSSs were not as complete as we would have liked.

We performed this review primarily between August 1986 and February 1987. The information that we obtained was updated through October 1987. Limited national data were available for analysis, but data available were for

- staffing;
- activity levels (weather briefings, flight plans filed, and in-flight contacts) for FSSs;
- status and schedules for FSS consolidation and automated FSS establishment; and
- temporary closure and reduced hours of operation of FSSs.

The FSS modernization program has not been completed; for example, Model 1 Full Capacity development, testing, and acceptance has not been completed, and revisions are being made to the Integrated Communications Switching System. In addition, FAA has not established performance standards for flight service specialists in automated FSSs or staffing standards for those automated FSSs. In the absence of such national data and program completion, we supplemented the testimonial and anecdotal evidence obtained from FAA headquarters and field managers with official reports and correspondence on more specific matters, interviews with supervisory and operational personnel (such as shift supervisors and specialists at FSSs and automated FSSs), observation of FSS and automated FSS activities (such as actual weather briefings and acceptance of flight plans), demonstrations of equipment and procedures at FSSs and automated FSSs, demonstrations of interim operating procedures, and demonstrations that Model 1 had been revised to meet individual operational requirements that had necessitated the interim operating procedures.

On September 2, 1987, the Chairman and Ranking Minority Member requested that we expand upon the August 1986 request and address several recent events, including the possibility of acquiring automated weather observing systems and the initiative to increase the air traffic controller work force, that may directly or indirectly affect the FSS modernization program. To respond to this request, we updated the information that we had obtained previously and obtained the additional data required through the end of fiscal year 1987.

We made this review in accordance with generally accepted government auditing standards.

FSSs Temporarily Closed or Operated With Reduced Hours

FAA temporarily closed or reduced the hours of service of 71 FSSs for various periods between August 1, 1981, and August 20, 1982. The number of FSSs temporarily closed or with reduced hours of service had increased, as a result of staff reductions, to 79 as of April 28, 1987.

Officials we interviewed in four FAA regions said that any staffing reductions they have to make will be made at the existing FSSs, not at automated FSSs. They were reluctant to detail staff to the smaller FSSs to prevent temporary closures or reduced hours of service because the specialists were needed at their permanent FSS or automated FSS. In addition, at times the regions lacked funds for staff transfers.

FAA categorizes the size of FSSs according to the annual number of services provided, as shown in table II.1. FAA varies the number of staff to correspond to the categories.

Table II.1: FSS Categories and Service Levels

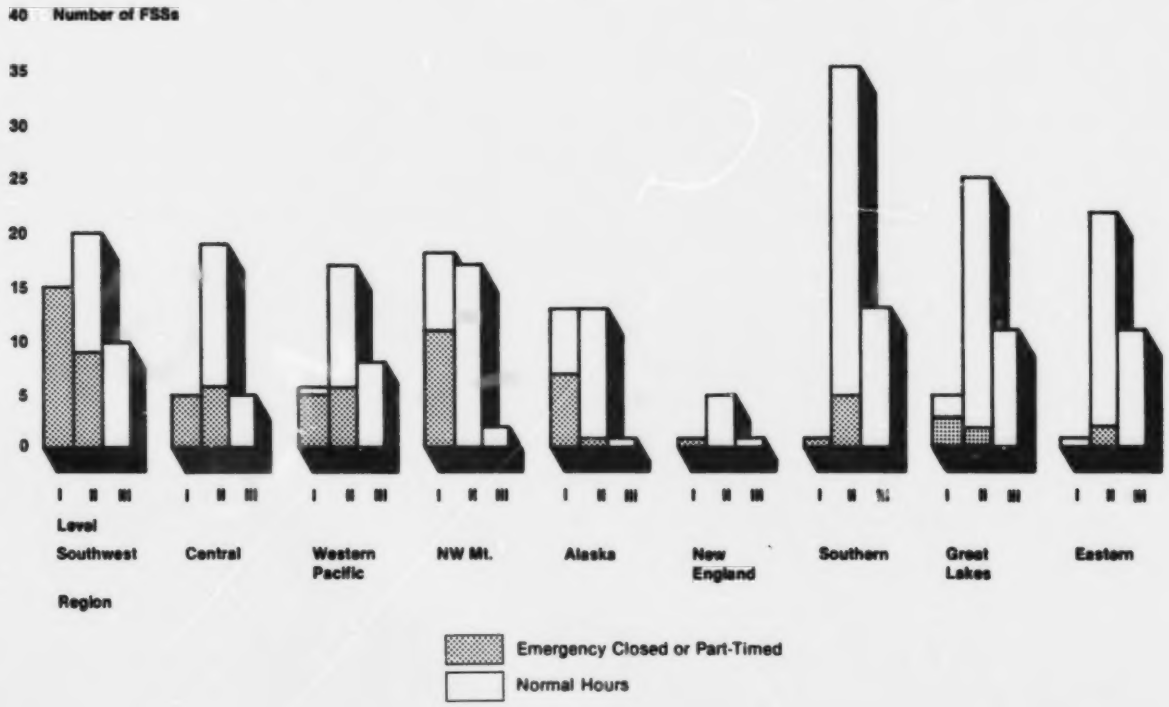
Category	Services provided annually
Level I	Less than 100,000
Level II	100,000 to 300,000
Level III	Over 300,000

With fewer specialists, FAA has had to temporarily close or reduce the hours of service of smaller FSSs (levels I and II) because a minimum of five specialists is needed to operate an FSS on a 24-hour schedule. Thus, eliminating one specialist at a small station can reduce the hours of service by one 8-hour shift.

Figure II.1 shows that the stations temporarily closed or operating with reduced hours of service are Level I and II FSSs and that the Alaska, Northwest Mountain, and Southwest FAA regions have the greater proportion of these smaller facilities.

Decisions to reduce an FSS's hours of operation on a temporary basis are made by the FSS manager in consultation with regional management. According to FAA, it does not plan to reduce the hours of any facilities but must react to contingencies when they arise. These contingencies include extended illness of a specialist, annual leave that must be granted under union contract provisions, and promotion of individuals to other facilities.

Figure II.1: FSSs Temporarily Closed or Operating With Reduced Hours of Service, by Level and Region, as of April 28, 1987



FAA plans for and responds to these contingencies through the use of overtime, where possible, or adding new staff. However, when new staff are not available and the amount of overtime is limited by funds or personnel restrictions, an FSS must temporarily reduce its hours of operation.

The incidence of FSSs temporarily closed or operated with reduced hours of service has not been predictable and has varied in response to (1) the number of contingencies reducing staff availability that arise at the small FSSs and (2) the staff that are available when the contingencies occur. The incidence of cases in which FSSs are temporarily closed or operated with reduced hours of service can be expected to continue until they are permanently closed through consolidation into the automated FSSs.

Pilot Access Time to a Flight Service Specialist

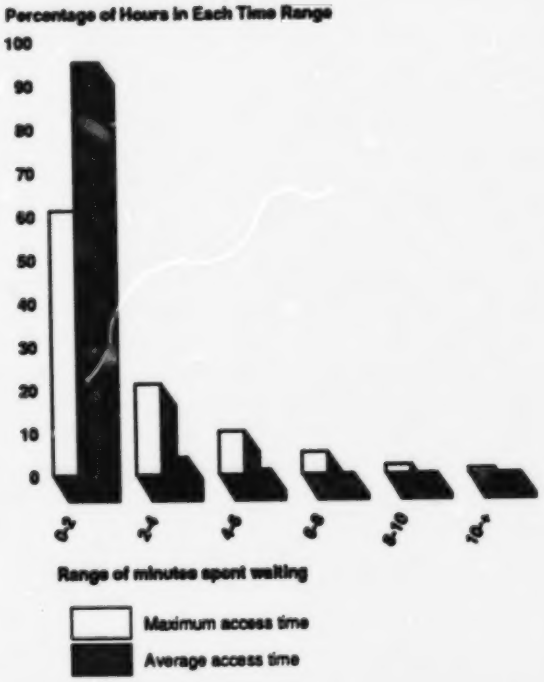
Pilots have complained that reaching flight service specialists at automated FSSs takes more time than before their FSSs were consolidated, and FAA has acknowledged that access time is a concern. A valid comparison of access time should include (1) seasonal as well as daily peak demand periods and various weather conditions, (2) automated FSSs having the minimum number of specialists FAA considers necessary, and (3) local FSSs not yet consolidated into the automated FSSs. This was not possible during our review because (1) many of the automated FSSs had been operating for less than a year and did not have data for the spring and summer peak demand periods, (2) some of the automated FSSs did not have the minimum number of specialists FAA considers necessary, and (3) quantitative data on access time are not available for either consolidated or unconsolidated local FSSs. Moreover, access time data available from the Integrated Communications Switching System at each automated FSS had not been verified by FAA, and two types of switching systems were being used, only one of which appeared to be providing accurate and useful data.

To obtain a quick test of pilot access time, we gathered data from the 16 automated FSSs having the Integrated Communications Switching System that appeared to be providing useful data for each hour between 5 a.m. and 9 a.m. (usually the daily peak demand period) for 2 weeks in January 1987 (January 16 through 30, except for one automated FSS that provided data from January 27 through February 9 and one that provided data from February 15 through March 14). We must caution that January is generally one of the lowest activity months for most FSSs and automated FSSs and that the short time period selected may not have included poor weather conditions that increase pilot demand for flight services.

Access Times Vary Among Automated FSSs

The maximum and average access times are summarized in figure III.1 They show, for the 16 automated FSSs, the percentage of the hourly periods in which the maximum and average access times were in a particular range. In 61 percent of the hourly periods, the maximum access time was under 2 minutes and in 95 percent of the hourly periods, the average access time was under 2 minutes. In 8 percent of the hourly periods, the maximum access time exceeded 6 minutes and in 1 hourly period the average access time exceeded 6 minutes. The longest access time in any of these hourly periods was about 14 minutes for one pilot.

Figure III.1: Maximum and Average Telephone Time Spent Waiting for a Specialist



Figures III.2 and III.3 show maximum and average access times for the three least busy and the three busiest of the 16 automated FSSs in terms of access time. For the three least busy automated FSSs, over 90 percent of the hourly periods had both maximum and average access times within 2 minutes. For the three busiest automated FSSs, 55 percent or more of the hourly periods had maximum access times within 4 minutes, but 80 percent of the hourly periods had average access times within 2 minutes.

Figure III.2: Maximum and Average Telephone Time Spent Waiting for a Specialist at Least Busy Automated FSSs

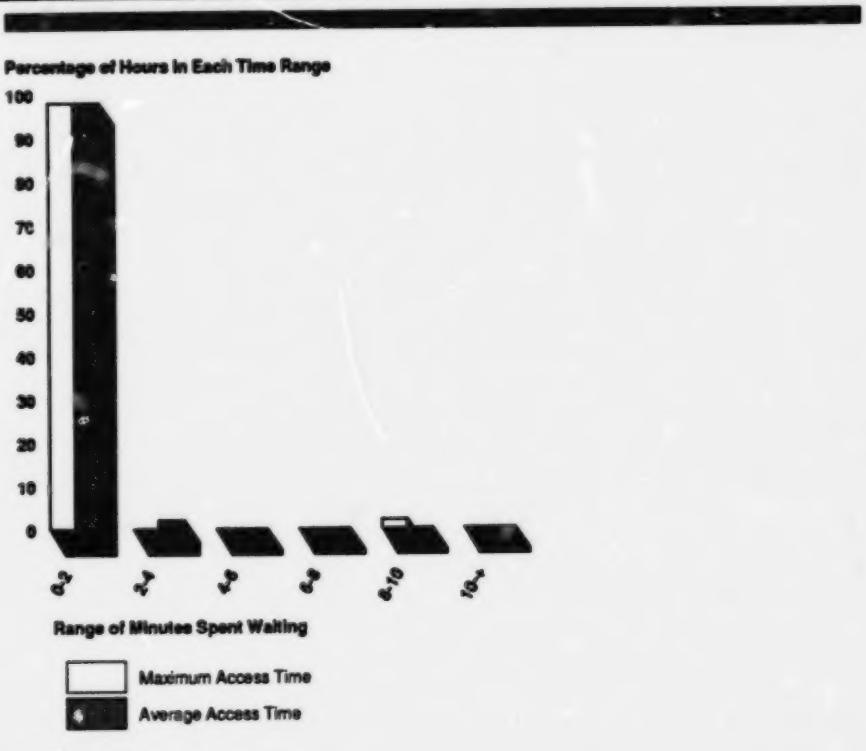
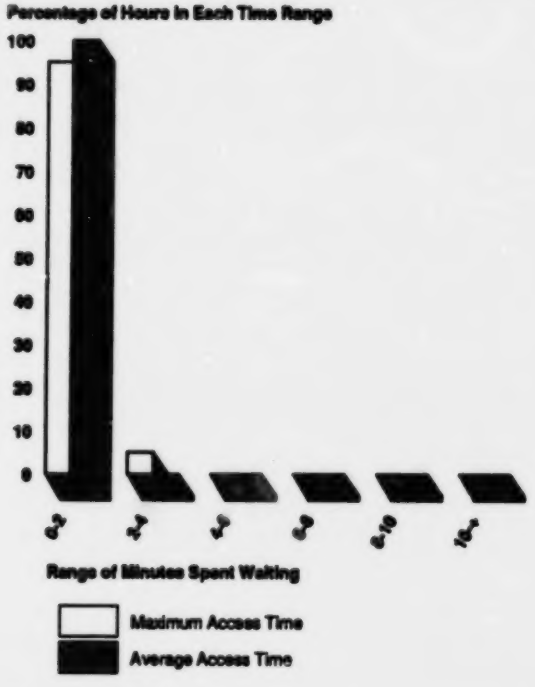
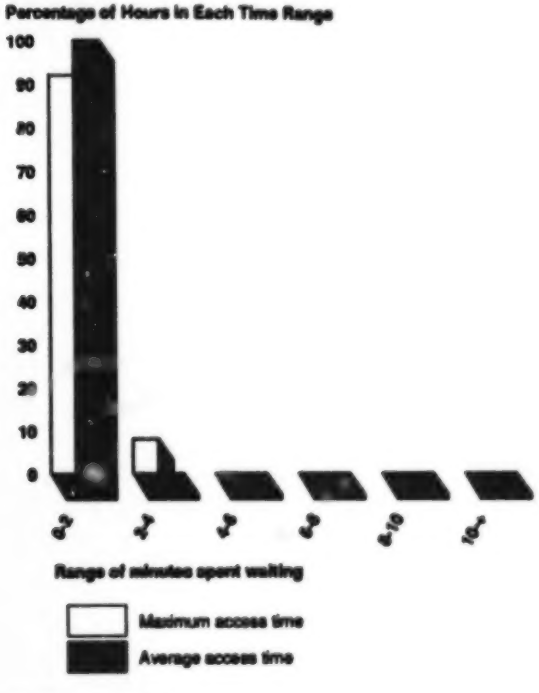


Figure III.2: (Continued)



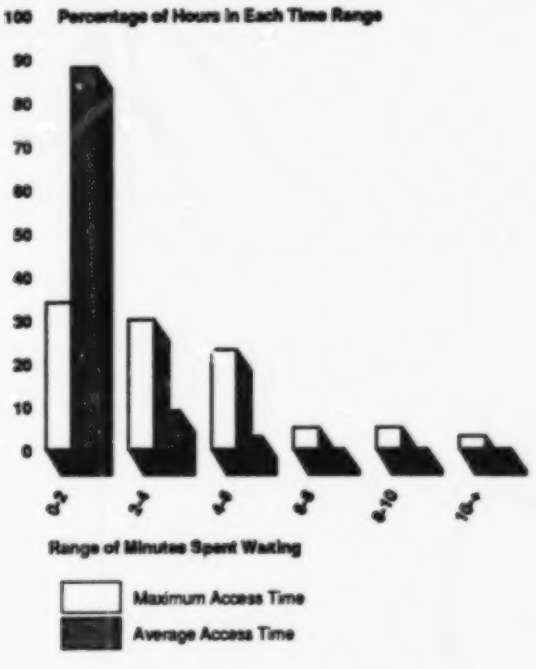
Columbus AFSS

Figure III.2: (Continued)



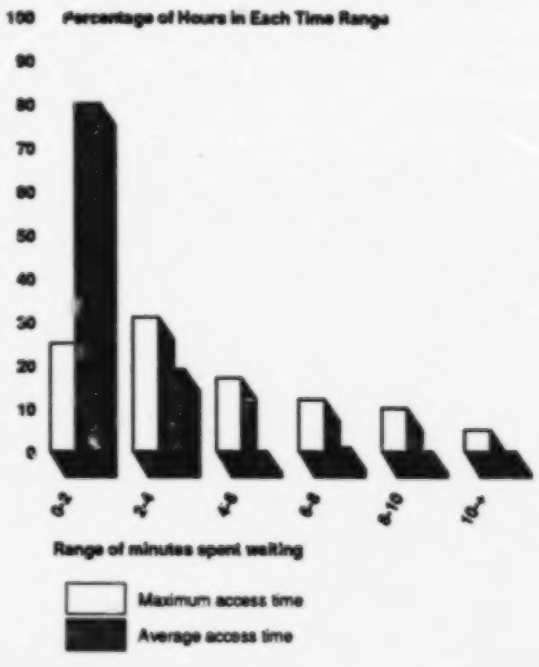
McAlester AFSS

Figure III.3: Maximum and Average Telephone Time Spent Waiting for a Specialist at Busiest Automated FSSs.



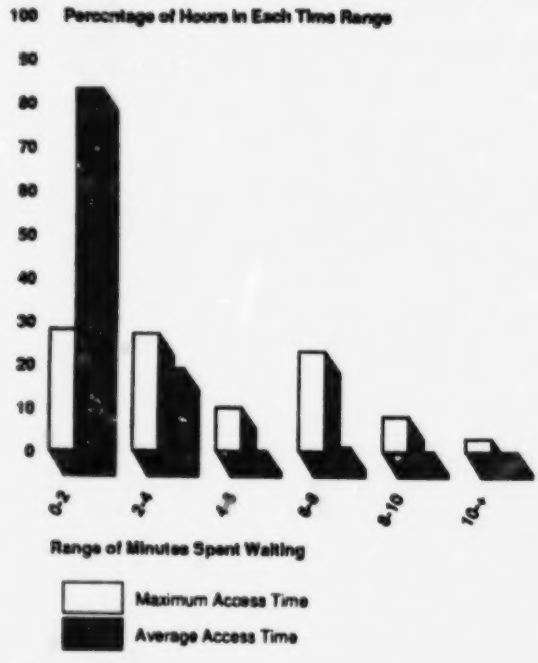
Bridgeport AFSS

Figure III.3: (Continued)



Miami AFSS

Figure III.3: (Continued)



Green Bay AFSS

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